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## MORPHOLOGICAL ANALYSIS OF THE JIULONG MOUNTAIN "MANBEAR" (WILDMAN) HAND AND FOOT SPECIMENS

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ABSTRACT: Hand and foot specimens from a "Manbear" (Wildman) killed by villagers at Jiulong Mountain in 1957 were studied. After morphological analyses and comparative measurements with Chinese macaque monkeys, it has been determined that the "Manbear" specimen most closely resembles a large stump-tailed monkey recently caught at Huang Mountain, which has not yet been scientifically described. It is concluded that the Jiulong Mountain "Manbear" represents, in fact, an unknown species of large monkey, probably a macaque. This does not solve the problem of the Chinese Wildman, which is reported to be over two meters tall and fully bipedal.

### INTRODUCTION

On the afternoon of May 23, 1957, a girl cowherd named Wang Congmei encountered a strange animal near Zhuanxian village, Shuichang County, Zhejiang Province, in the People's Republic of China. The area is near Jiulong Mountain (Jiulongshan). It was killed by her mother and other villagers. The hands and feet of this animal were severed and kept by a middle-school biology teacher. In 1981, the Scientific and Technological Society of Shuichang District reported on this incident. After learning the news, the author made an on-site, preliminary investigation. This was supposedly the first material evidence of Wildman found in China (Zhou 1982).

The witnesses involved included Wang Congmei, her mother Xu Fudi, the Bihu middle-school teacher Zhou Shousong, and others.

The witnesses all agreed that the "Manbear" did not resemble either a bear or a monkey. Its features were described as strange and like those of a man. Zhou Shousong said that the face of the animal looked like that of a human. Its head was said to be round, about 16–17 cm in length, and its mouth did not protrude, being flat. The hands and feet were shaped somewhat like those of a bear, but had nails instead of claws. The toenails were





flat. Wang Congmei said that the head was similar to that of a man, and the hairless skin was thin. They later found bamboo shoots and grass in its stomach. According to Miss Wang's recollection, the animal walked quadrupedally, with a rolling gait. The height of its shoulders was about 40 to 50 cm. The body was "strong." The walking posture looked like that of a panda. There was uncertainty concerning whether it had a tail. Wang said it had no tail, but another witness said he saw a short one. Male genital organs were visible, and it also appeared to have small breasts. There was no hair on the seat part of the buttocks, and the area included a black spot. I showed the witnesses a photo of a young orangutan; both Wang and her mother said that it resembled the animal.

According to this preliminary investigation, the "Manbear" they had killed had the following features and characteristics:

1) The body was over 1 meter tall when erect and about 50 cm tall when in a quadrupedal position.
2) Locomotion was mainly quadrupedal.
3) The hair was black, with curls on the head.
4) The head was round, the mouth not protruding, and the animal had features similar to a young orangutan.
5) It moved slowly, and did not initially show aggression.
6) It was a vegetarian, eating bamboo shoots in the spring.
7) There was no hair on its buttocks.
8) It had a short tail, or none at all.

### METHOD

The hand and foot specimens of the Jiulong Mountain "Manbear" were carefully examined and measured for their morphological and biomechanical significance. X-ray images were also obtained in order to study internal osteological features. Hand and foot measurements of Chinese monkeys most closely resembling the morphology and behavior of the Jiulong Mountain "Manbear" were also obtained at zoos and museums, and these were compared with the "Manbear" measurements.

### RESULTS

The physical remains of the Jiulong Mountain "Manbear" are represented by a pair of hands and a pair of feet (Figs. 1, 2 and 3). Small parts of the tibia and fibula are preserved in the right foot. All toenails of both feet are intact. Some parts of thick callus on the soles are missing. In order to observe the soleprint and the toeprints clearly, I cleared all thick callus from the left foot.

After being preserved for so long, the muscles, especially in the fingers and toes, show obvious dehydration and amyotrophy. The hair is somewhat

FIG. 1.—A bottom (palm) view of the Jiulong Mountain "Manbear" hands.

black-brown in color. The soles are red-brown, and the palm surfaces are somewhat yellow-brown.

There is no hair on the palms of the hands and feet. The skinprints (dermatoglyphic patterns) are clear, intact, and easy to compare and study.

There is thick hair covering the backs of the hands, the wrists, and the radial sides of the forearms. The longest hair is about 3.5 cm in length.

The fingers: There is hair on the backs of the first phalanges, but not on the second and third ones. There is no thickening of the skin or widening of the phalange bones, and we can thus conclude that the animal did not knuckle-walk. No obvious thick callus is visible on the palms. The distal ends of the thumbs surpass the level of the metacarpal-phalange joints, but not as far as with humans. The thumbs of the apes, on the other hand, are small, and do not surpass the level of the metacarpal-phalange joints.

The fingers are conical in shape. The finger length formula is $3>4>2>5>1$. The angle between the thumb and the axis of the palm is 19°, the same as with humans. The degree of flatness of the fingernails is great. Their shapes are similar to those of both humans and apes, but different from those of monkeys.

The backs and sides of the feet and toes are covered with thick hair. The length of hair is about 1.5 cm; the longest one is 3.2 cm. The hair is much longer at the ankle, about 6.5 cm. The thickness of the callus on the sole is about 1–2 mm.



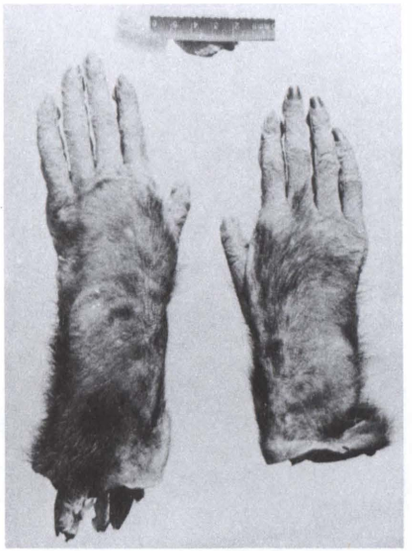

FIG. 2.—A top (dorsal) view of the Jiulong Mountain "Manbear" hands.

The muscles of the foot show obvious dehydration and amyotrophy. Viewed from the sole, the shape of the foot is an elongated rhomboid. The heels are small, and quite different from those of humans and apes.

The big toes are large, and similar to those of man. However, they branch off sideways and are not parallel to the other four toes. The maximum abduction (spread) angle between the big and second toes is about 90° to 100°, which is a smaller angle than with other stump-tailed monkeys.

There are well-developed membranes between the toes, which reach to between the first and second phalangeal joints. Those of fingers reach only to the middle of the first phalanges.

There are several well-developed volar pads (or muscle spheroids) on the soles of the feet. These are located at the metatarsal-phalange joints of digits II through V, on the muscle pad of digit I, and on the lateral edge of the sole. Some volar pads are also visible on the hands, but they are not as well developed as those of the feet.

There is no foot arch. The toe bones lie flat against the sole of the foot. Except for the conical shape of the nail of the second toe, which is "paw-shaped" at the tip, the toenails are flat. The second toe is the smallest.

Judging from the structures of the hands and feet, it is apparent that they had different biomechanical functions. The feet were the principal means of locomotion, but could also grasp. The hands were mainly for grasping, but had the ability to support the body.

FIG. 3.—A sole (plantar) view of the Jiulong Mountain "Manbear" feet.

The following characteristics of the hands and feet were revealed by X-ray examination: all epiphysis have fused, and their lines are obliterated, so the specimens belonged to an adult. However, because there are no obvious soft-tissue scars on the specimens, I consider the animal to have been a young adult.

The bones of the wrist are small, and have large gaps between them. Furthermore, much larger gaps are visible between the distal joint surfaces of the radius and ulna, and the navicular, lunate, and triquetral bones. This demonstrates that the wrist could adequately exercise the function of spreading the palm and giving ground support in locomotion.

There is only a small joint surface at the base of the thumb—that connecting the first metacarpal with the trapezium. It appears that the movement of the thumb, relative to the palm, is limited. There is no apparent increase in the size and thickness of the second phalangeal bones. The possibility of knuckle-walking, as with apes, is therefore excluded.

The radiographs show the proportion of the phalanges, metatarsals and tarsals is 36.6/31.1/32.2. It is quite different from that of humans, which is 15/30/52, where walking erect has greatly strengthened the metatarsals. There are many sesamoids in the "Manbear" feet, indicating that they possessed



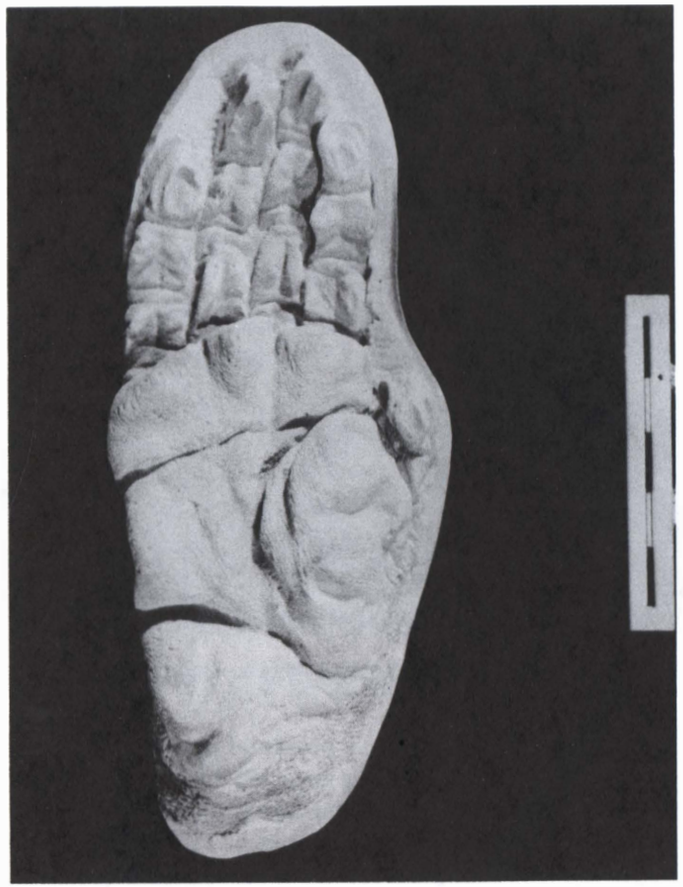

FIG. 4.—A cast of the right hand of the Jiulong Mountain "Manbear." Note the dermatoglyphic patterns.

the main locomotory function. The skin of the heel shows some wear, indicating a primary adaptation to ground-dwelling.

Let us now discuss the skinprints of the fingers and palms. The dermatoglyphic patterns of the fingers show irregular long whorls. There are three flexor creases in the palm (Figs. 1 and 4) which divide it into four parts: the distal, the proximal (near the wrist), the medial, and the lateral. There is a regular dermatoglyphic pattern spread over the entire palm. An extension of the central crease separates the distal part into two sub-parts, whereas the other parts are not divided. Extensive spiral ridges that center on the convex areas are visible.

There are three lines of flexor creases in the human palm, but it is divisible

FIG. 5.—The new Huang Mountain monkey, probably a new species or subspecies of *Macaca.*

only into three parts, and no obvious proximal part is visible. The dermatoglyphic pattern of the human palm is generally arch-shaped, and the spiral-shape is rare. The prints of the fingers and palms of the "Manbear," therefore, are different from those of man as well as ape.

The characteristics of the specimens of the Jiulong Mountain animal can be summarized as follows:

1) The hands and feet show many morphological differences. The hands, besides helping to walk, were mainly used for grasping. The feet were used mainly for locomotion. The sole fully touched the ground, but the big toe still maintained the ability to grasp. This animal was mainly ground-dwelling.

2) The palms show some similarities to those of man, but are different from those of apes. They are more like those of monkeys.

3) The feet are obviously different from those of humans, but have some similarities to those of the chimpanzee. They are much closer to those of ground-dwelling monkeys.

4) Except for the second fingers and second toes, the nails are flat, similar to those of man. They show many differences from those of known macaque monkeys such as *Macaca mulatta, M. assamensis,* and *M. speciosa.*

5) The dermatoglyphic patterns of the palm and sole are obviously dif-



TABLE 1.—Comparisons of hand measurements (mm) of the Jiulong Mountain "Manbear," the still-undescribed Huang Mountain monkey, and two other Chinese macaques.

| | Jiulong Mountain "Manbear" | | Huang Mountain Monkey | | *M. assamensis* (SZ) | *M. speciosa melli* | | *M. assamensis* (SNHM) |
|---|---|---|---|---|---|---|---|---|
| | L. | R. | L. | R. | R. | (SZ) R. | (SNHM) R. | L. |
| 1. Total length | 125.0 | 127.0 | 114.0 | 114.0 | 112.0 | 114.0 | | |
| 2. Total breadth | 46.0 | 46.0 | 47.0 | 47.0 | 44.0 | 49.0 | 43.5 | 41.0 |
| 3. Breadth–length index (2/1) | 36.8 | 36.6 | 39.5 | 41.7 | 38.3 | 43.0 | | |
| 4. Length of middle finger | 68.0 | 69.0 | 66.0 | 66.0 | 77.0 | 71.0 | | |
| 5. Mid-digital index (4/1) | 54.4 | 54.3 | 55.0 | 57.9 | 68.8 | 62.8 | | |
| 6. Palm length | 132.5 | 137.0 | 134.0 | 133.0 | 127.0 | 128.0 | 87.0 | 118.0 |
| 7. Thumb length | 22.0 | 22.0 | 23.0 | 24.0 | 23.0 | 25.5 | | |
| 8. 1–2 Finger angle | 90.0 | 90.0 | 95.0 | 95.0 | 110.0 | 90.0 | | |
| 9. Fingernail shape index of 1st* | | | 97.2 | 87.5 | 162.0 | 85.7 | 100.0 | 125.0 |
| 10. Fingernail shape index of 2nd | | | 97.2 | 68.0 | 64.1 | 73.2 | 51.0 | 70.0 |
| 11. Fingernail shape index of 3rd | | 73.3 | 76.1 | 65.0 | 75.0 | 73.2 | 45.5 | 100.0 |
| 12. Fingernail shape index of 4th | 75.0 | 75.5 | 65.0 | 66.7 | 100.0 | 57.8 | 43.6 | 74.1 |
| 13. Fingernail shape index of 5th | 62.5 | 61.1 | 52.6 | 50.0 | 69.0 | 62.5 | 47.1 | 51.5 |

* Fingernail shape index = (fingernail breadth/fingernail length) × 100.
SZ = Shanghai Zoo; SNHM = Shanghai Natural History Museum.

TABLE 2.—Comparisons of foot measurements (mm) of the Jiulong Mountain "Manbear," the still-undescribed Huang Mountain monkey, and two other Chinese macaques.

| | Jiulong Mountain "Manbear" | | Huang Mountain monkey | | *M. assamensis* (SZ) | *M. speciosa melli* | | | *M. assamensis* (SNHM) |
|---|---|---|---|---|---|---|---|---|---|
| | L. | R. | L. | R. | L. | (SZ) L. | (SNHM) L. | (SNHM) R. | R. |
| 1. Total length | 185.0 | 184.0 | 183.0 | 183.0 | 175.0 | 175.0 | 155.0 | | 140.0 |
| 2. Total breadth | 78.0 | 79.0 | 74.0 | 73.0 | 65.0 | 65.0 | 52.0 | | |
| 3. Breadth–length index (2/1) | 42.3 | 42.9 | 40.4 | 39.7 | 37.1 | 37.1 | 33.5 | | |
| 4. Length of middle toe | 75.0 | 75.0 | 56.0 | 55.0 | 37.1 | 37.1 | 38.0 | | |
| 5. Mid-digital index (4/1) | 40.5 | 40.8 | 30.0 | 30.0 | 30.9 | 30.9 | 24.5 | | 36.0 |
| 6. Tarsus breadth | 27.0 | 30.0 | 24.5 | 29.0 | 19.0 | 30.0 | | | 25.7 |
| 7. 1–2 Toe angle | 100 | 90 | 115 | 120 | 150 | 120 | | | |
| 8. Toenail shape index of 1st* | 125.0 | 137.5 | 141.1 | 105.6 | 133.3 | 89.5 | | 100.0 | 100.0 |
| 9. Toenail shape index of 2nd | 60.0 | 45.5 | 43.5 | 41.5 | 44.4 | 40.0 | | 32.0 | 30.0 |
| 10. Toenail shape index of 3rd | 82.4 | 83.3 | 60.0 | 58.0 | 68.8 | 55.9 | | 43.6 | 83.3 |
| 11. Toenail shape index of 4th | 77.8 | 70.1 | 60.0 | 57.1 | 46.9 | 41.8 | | 53.5 | 70.0 |
| 12. Toenail shape index of 5th | 58.8 | 62.5 | 46.7 | 53.1 | 47.5 | 38.0 | | 40.0 | 43.8 |

*Toenail shape index = (toenail breadth/toenail length) × 100.
SZ = Shanghai Zoo; SNHM = Shanghai National History Museum.





FIG. 6.—The hand of the new Huang Mountain monkey, showing the flat fingernails. These resemble those on the Jiulong Mountain "Manbear" hands.

ferent from those of man and ape. The palm is divided into four parts by three flexor creases. The dermatoglyphic patterns are spiral.

6) Judging from the data available, the animal was large, and represented a considerable biomass when it lived.

In order to further identify the specimens of the Jiulong Mountain "Manbear," I visited the zoos and museums of Beijing, Shanghai, Hangzhou, and Hefei to make comparisons with known apes and monkeys, especially macaques. Forensic medicine specialists in Shanghai also helped me with the identification of hair microstructure, blood types, and skinprints.

Although some of the features of the specimens resemble those of an ape, the major characteristics and structures are more similar to those of a macaque monkey.

The dermatoglyphic pattern is similar to that of *Macaca mulatta, M. assamensis,* and *M. speciosa,* the latter two of which are found in China. *M. speciosa* could also be represented by two subspecies: *M. s. melli* and *M. s. thibetanus.* A large and new kind of stump-tailed monkey has also been captured recently near Huang Mountain (Huangshan), but has not yet been scientifically described. It probably represents a new species or subspecies

FIG. 7.—The dermatoglyphic pattern of the left hand of the Huang Mountain monkey.

of Chinese macaque, and is currently in the Hefei Zoo, Anhui Province (Fig. 5).

Comparisons of the hand and foot measurements of the Jiulong Mountain "Manbear" and the above-mentioned macaques have been made. The morphological features of the Jiulong Mountain hand and foot specimens resemble more closely those of the still undescribed Huang Mountain monkey (Tables 1 and 2).

## DISCUSSION

The newly found Huang Mountain monkey is mainly ground-dwelling, according to sources at the Hefei Zoo. The body is large, about 70–90 cm in standing height. A tall individual could reach 1 meter. Its extremities are strongly built. It weighs more than 20 kilograms. A large male could weigh over 33 kilograms, while females would be smaller. The back hair is brown in color. The adult male has whiskers, and has a reddish color on the face. It is not active in disposition. It is mainly herbivorous, sometimes eating a little meat. It reportedly likes to eat bamboo shoots in the spring. These features are similar to those reported for the Jiulong Mountain animal killed in 1957.

The morphological features of the hands and feet of the Huang Mountain monkey are similar to those of the Jiulong Mountain specimens. Of special



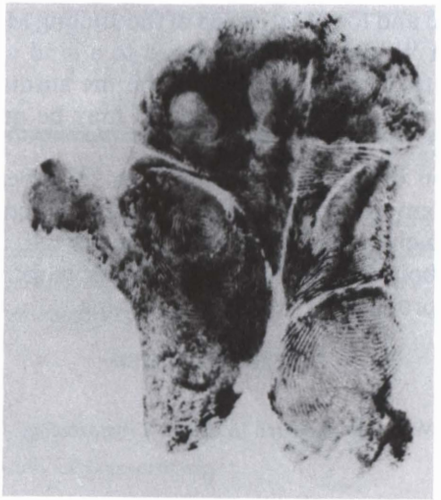

FIG. 8.—The dermatoglyphic pattern of the right hand of *Macaca assamensis*.

interest is the fact that the Huang Mountain monkey's fingernails and toenails are flat, except for the "paw shape" of the second digits (Fig. 6). This feature is similar to the Jiulong Mountain animal, and is not found in other macaques. Dermatoglyphic patterns of the Huang Mountain monkey have also been obtained (Fig. 7), and may be compared to those of *Macaca assamensis* (Fig. 8).

Judging from the available data, we can conclude that the Jiulong Mountain "Manbear" killed in 1957 was a large stump-tailed macaque resembling the Huang Mountain monkey. It is still uncertain whether it represents a new species or subspecies.

It is noteworthy that a strange animal called "Huan" is recorded in *The History of Shuichang County*. It is reported that "Huan is like a monkey, big in size and black in color. Its disposition is slow." The discovery of the large Jiulong Mountain stump-tailed monkey, showing many similarities with the historical Huan, now provides strong scientific evidence in support of this ancient record.

It is also noteworthy that reports of a shorter Wildman, about 1.2 meters tall, have come from the western part of Yunnan Province and the Shengnongjia region in Hubei Province. It is the author's opinion that such Wildman reports result from sightings of these large monkeys. If this conclusion is correct, the discovery of the Huang Mountain monkey has important significance for solving the problem of the small Wildman in these areas. It should be noted that the Huang Mountain monkey appears to have been recorded in ancient local history with the same name, "Wildman."

I believe the hand and foot specimens of the Jiulong Mountain "Manbear" were not those of a Wildman, but belonged to a kind of large stump-tailed monkey unknown to science. It may well be the animal called "Huan" in ancient Chinese literature. Their population may be quite small, and they may even be extinct.

The identification of the Jiulong Mountain "Manbear" specimens does not solve the problem of Wildman in the Jiulong Mountain area. Wildman reportedly has a much larger body, over 2 meters tall, is fully bipedal, and leaves footprints about 30 cm in length. Further work will be necessary in order to solve the problem of Wildman in China.

## Reference Cited

Zhou Guoxing
1982 The Status of Wildman Research in China. *Cryptozoology,* Vol. 1: 13–23.